

WHAT IS CLAIMED IS:

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1. A data transmission method comprising the steps of:

controlling an input port part having a plurality of input ports, and an output window part  
10 having a plurality of buffers in accordance with data storage states of the plurality of buffers;

causing data from the plurality of input ports into buffers that have available areas, said buffers being included in the plurality of buffers;  
15 and

multiplexing the data read from the buffers in time division multiplexing for transmission.

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2. A transmission apparatus comprising:  
an input port part having a plurality of  
25 input ports;

an output window part having a plurality of buffers;

a switch part making connections between the plurality of input ports and the plurality of  
30 buffers;

a selection control circuit controlling the switch part so that data from the plurality of input ports are stored in buffers that have available areas among the plurality of buffers in  
35 accordance with data storage states of the plurality of buffers; and

a time division multiplexing part

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multiplexing the data read from the plurality of buffers in time division multiplexing for transmission.

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3. The transmission apparatus as claimed in claim 2, wherein:

10 the output window part includes a plurality of buffers for each of priorities; and the selection control circuit controls the switch part to cause the data from the plurality of input ports to be stored in a buffer which is  
15 included in the plurality of buffers and has an available area in accordance with storage states of the plurality of buffers for each of the priorities.

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4. The transmission apparatus as claimed in claim 2, wherein:

the output window part includes a  
25 plurality of buffers for each of data types; and the selection control circuit controls the switch part to cause the data from the plurality of input ports to be stored in a buffer which is included in the plurality of buffers and has an  
30 available area in accordance with storage states of the plurality of buffers for each of the data types.

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5. The transmission apparatus as claimed in claim 2, wherein:

the output window part includes a plurality of buffers for each of priorities and each of data types; and

the selection control circuit controls the  
5 switch part to cause the data from the plurality of  
input ports to be stored in a buffer which is  
included in the plurality of buffers and has an  
available area in accordance with storage states of  
the plurality of buffers for each of the priorities  
10 and each of the data types.

15 6. The transmission apparatus as claimed  
in claim 2, wherein the data input to the input port  
part include an IP packet.

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7. The transmission apparatus as claimed  
in claim 2, wherein the input port part comprises  
label add parts which add labels to the plurality of  
25 input ports.

30 8. The transmission apparatus as claimed  
in claim 2, wherein the output port part comprises a  
SONET frame assembly parts which assemble data read  
from the plurality of buffers into respective SONET  
frames, which are then supplied to the time division  
35 multiplexing part.

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9. The transmission apparatus as claimed  
in claim 2, wherein the output window part comprises  
5 simple SONET frame assembly parts which assemble  
data read from the plurality of buffers into  
respective SONET frames, which are then supplied to  
the time division multiplexing part.

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10. The transmission apparatus as claimed  
in claim 1, further comprising an 8B/10B conversion  
15 part that converts multiplexed data from the time  
division multiplexing part into data having an  
8B/10B conversion format for transmission.

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11. The transmission apparatus as claimed  
in claim 2, further comprising MAC delete/label add  
parts that delete MAC addresses from IP packets and  
25 add labels corresponding to the plurality of input  
ports to IP packets that are the data input to the  
input port part.

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12. The transmission apparatus as claimed  
in claim 2, further comprising:  
label detection parts that detect labels  
35 added to a plurality of items of data obtained by  
subjecting a received signal to demultiplexing in  
the time division multiplexing;

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a second switch part making connections between the plurality of second buffers and the plurality of output ports; and

5 a second selection control circuit that controls the second switch part so that the plurality of items of data can be output via the output ports dependent on the labels detected.